



## CHAPTER 24

# StpApp Service

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This chapter describes the DCNM web services' API methods for the StpApp service.

## Information About StpApp Service

This chapter defines the APIs exposed by the Spanning Tree Protocol (STP) service feature.

### bindPvstSettingToVlans

Apply a PVST setting for one or more VLAN Ids. If any of the properties is set as null in PvstSetting, those properties will be set to default values.

ValidationException is thrown if any of the following situations occurs:

- If neIds is null
- If vlanIds is null.
- If setting is null.

#### Parameters

opContext—Operational context

neIds—NetworkElement instance name id collection.

vlanIds—VLAN ids

setting—Per-VLAN STP setting

#### Return Value

void

### bindStpNetworkInterfaceSettingForMstInstances

Bind StpNetworkInterfaceSettingBase to a range of MST ids for a given interface. The StpNetworkInterfaceSettingBase instance needs to have a valid instance name set to it.

ValidationException is thrown if any of the following situations occurs:

- If networkInterfaceInstanceNameIds is null or it is empty.

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- If networkInterfaceInstanceNameIds contains invalid network interface InstanceNameId or null value.
- If there is no equivalent NetworkInterface object with the given InstanceNameId in the networkInterfaceInstanceNameIds.
- If mstIds is null or it is empty.
- If the setting is null.

PropertiesException is thrown if any of the following situations occurs:

- If any of the StpNetworkInterfaceSetting attribute corresponding to an interface is not valid.

Example:

- cost of an StpNetworkInterfaceSetting should be some Integer with value between 1-200000000, any value that is less than 1 or greater than 200000000 will cause a PropertiesException.

### Parameters

opContext—Operational context

networkInterfaceInstanceNameIds—List of InstanceNameId of network interfaces.

mstIds—range of MST IDs (e.g. 1-10,20,35,50-120)

setting—STP setting applied to network interfaces. Values range from 1-200000000.

### Return Value

void

## bindStpNetworkInterfaceSettingForVlans

Bind StpNetworkInterfaceSettingBase to a range of VLAN ids for a given interface.

ValidationException is thrown if any of the following situations occurs:

- If networkInterfaceInstanceNameIds is null or it is empty.
- If networkInterfaceInstanceNameIds contains invalid network interface InstanceNameId or null value.
- If there is no equivalent NetworkInterface object with the given InstanceNameId in the networkInterfaceInstanceNameIds.
- If vlanIds is null or it is empty.
- If the setting is null.

PropertiesException is thrown if any of the following situations occurs:

- If any of the StpNetworkInterfaceSetting attribute corresponding to an interface is not valid.

Example:

- cost of an StpNetworkInterfaceSetting should be some Integer with value between 1-200000000, any value that is less than 1 or greater than 200000000 will cause a PropertiesException.

### Parameters

opContext—Operational context

networkInterfaceInstanceNameIds—List of InstanceNameId of network interfaces.

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vlanIds—range of VLAN IDs (e.g. 1-10,20,35,50-120)

setting—STP setting applied to network interfaces. Values range from 1-200000000.

**Return Value**

void

## bindStpNetworkInterfaceSettingsToNetworkInterface

Apply a STP setting to one or more network interfaces. The StpNetworkInterfaceSetting should have a valid instance name set to it. Pass NULL values for the fields that need be reset to default values.

ValidationException is thrown if any of the following situations occurs:

- If networkInterfaceInstanceNameIds is null or it is empty.
- If networkInterfaceInstanceNameIds contains invalid network interface InstanceNameId or null value.
- If there is no equivalent NetworkInterface object with the given InstanceNameId in the networkInterfaceInstanceNameIds.
- If the setting is null.

PropertiesException is thrown if any of the following situations occurs:

- If any of the StpNetworkInterfaceSetting attribute corresponding to an interface is not valid.

Example:

- cost of an StpNetworkInterfaceSetting should be some Integer with value between 1-200000000, any value that is less than 1 or greater than 200000000 will cause a PropertiesException.

**Parameters**

opContext—Operational context

networkInterfaceInstanceNameIds—List of InstanceNameId of network interfaces.

setting—STP setting applied to network interfaces. Values range from 1-200000000.

**Return Value**

void

## bindVlansToMstInstance

Bind set of VLAN ids to MST instance.

ValidationException is thrown if any of the following situations occurs:

- If the mstId is null.
- If the mstId does not have equivalent MstSetting object in the database.
- If the vlanIds is null.

**Parameters**

opContext—Operational context

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mstId—InstanceNameId of MST

vlanIds—range of VLAN IDs (e.g. 1-10,20,35,50-120)

**Return Value**

void

## createMstInstance

Creates an MST instance and associated VLANs in a network element.

ValidationException is thrown if any of the following situations occurs:

- If neInstanceNameId is null.
- If neInstanceNameId is not a valid network element InstanceNameId.
- If vlanInstanceNameIds is null or it is empty.
- If vlanInstanceNameIds contains invalid VLAN InstanceNameId or null value.
- If there is no equivalent VLAN object with the given InstanceNameId in the vlanInstanceNameIds.
- If the mstInstance is null.

PropertiesException is thrown if any of the following situations occurs:

- If any of the MstSetting attribute is not valid.

Example:

- stpHelloTime of an MstSetting should be some Integer with value between 1-10, any value that is less than 1 or greater than 10 will cause a PropertiesException.

IntegrityException is thrown if any of the following situations occurs:

- If the mstInstance already exists in the database.

**Parameters**

opContext—Operational context

neInstanceNameId—InstanceNameId of network element.

mstInstance—MST instance to be created.

vlanInstanceNameIds—List of InstanceNameId of VLANs to be associated to the MST instance.

**Return Value**

InstanceNameId of the new MST instance.

## createMstInstanceByRange

Create a MST instance on a set of network elements. Creates a MST instance with the specified ID and associates it to the specified VLAN range. If the specified VLAN doesn't exist, the VLAN will not be created but the mapping will be created.

Following associations are to be created for the given MST setting in the server:

- MST to VLAN mapping

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ValidationException is thrown if any of the following situations occurs:

- If neInstanceNameIds is null or it is empty.
- If neInstanceNameIds contains invalid network element InstanceNameId or null value.
- If there is no equivalent network element object with the given InstanceNameId in the neInstanceNameIds.
- If the instanceId is null.
- If the vlanRange is null.

PropertiesException is thrown if any of the following situations occurs:

- If any of the MstSetting attribute is not valid.

Example:

- instanceId of a MstSetting should be some Integer with value between 0-4094, any value that is less than 0 or greater than 4094 will cause a PropertiesException.

IntegrityException is thrown if any of the following situations occurs:

- If the MstSetting corresponding to instanceId already exist in the database.

### **Parameters**

opContext—Operational context

neInstanceNameIds—List of InstanceNameId of network elements on which the MST instance is to be created.

instanceId—MST instance ID.

vlanRange—Range of VLAN IDs.If VLAN doesn't exist, then create a VLAN with instance state specified as incomplete.

### **Return Value**

List of InstanceNameId for each MST instance created on the network elements.

## **createMstInstances**

Create MST instances with their associations on one or more network elements.

Following associations are to be provided for the given MST setting:

- Network Element
- VLANs association that are mapped to an MST instance

ValidationException is thrown if any of the following situations occurs:

- If the mstInstances is null or the collection is empty.
- If the mstInstances contains one or more null element, or the collection contains objects that are not of type MstSetting.
- If the any of the MstSetting object within mstInstances have an association with AbstractNetworkElement which does not exist in database.

PropertiesException is thrown if any of the following situations occurs:

- If any of the MstSetting attribute is not valid.

Example:

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- stpHelloTime of an MstSetting should be some Integer with value between 1-10, any value that is less than 1 or greater than 10 will cause a PropertiesException.

IntegrityException is thrown if any of the following situations occurs:

- If the any of the MstSetting object within mstInstances have no association with AbstractNetworkElement.
- If the mstInstances contains a MstSetting that already exist in the database.

### **Parameters**

opContext—Operational context

mstInstances—List of MST instances to be created.

### **Return Value**

List of InstanceNameId of new MST instances.

## **createMstInstancesInNetworkElement**

Creates MST instances in a network element. MST cannot be created without VLAN as so cation.

Following associations are to be provided for the given MST setting:

- VLANs association that are mapped to an MST instance

ValidationException is thrown if any of the following situations occurs:

- If neInstanceNameId is null.
- If neInstanceNameId is not a valid network element InstanceNameId.
- If the mstInstances is null or the collection is empty.
- If the mstInstances contains one or more null element, or the collection contains objects that are not of type MstSetting.

PropertiesException is thrown if any of the following situations occurs:

- If any of the MstSetting attribute is not valid.

Example:

- stpHelloTime of an MstSetting should be some Integer with value between 1-10, any value that is less than 1 or greater than 10 will cause a PropertiesException.

IntegrityException is thrown if any of the following situations occurs:

- If the mstInstances contains a MstSetting that already exist in the database.

### **Parameters**

opContext—Operational context

neInstanceNameId—InstanceNameId of network element.

mstInstances—List of MST instances.

### **Return Value**

List of InstanceNameId of new MST instances.

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## deleteMstInstances

Deletes a MST instance. If operational STP type is MST, all the VLANs corresponding to the MST instance will be assigned the default MST instance 0.

ValidationException is thrown if any of the following situations occurs:

- If mstInstanceNameIds collection is null or it is empty.
- If mstInstanceNameIds collection contains an element that is not of type MstSetting InstanceNameId.
- If mstInstanceNameIds collection contains a MstSetting that does not exist in the database.

### Parameters

opContext—Operational context

mstInstances—List of InstanceNameId of MST instances to be deleted.

### Return Value

void

## getBlockingStpPortsCountInMsts

Returns list of Integer objects containing the number of ports with STP blocking state participating in each MST for the given list of MST instance ids.

ValidationException is thrown if any of the following situations occurs:

- If mstInstanceNameIds is null or it is empty.
- If mstInstanceNameIds contains invalid MstSetting InstanceNameId or null value.
- If there is no equivalent MstSetting object with the given InstanceNameId in the mstInstanceNameIds.

### Parameters

opContext—Operational context

mstInstanceNameIds—List of InstanceNameId of MST ids

### Return Value

List of Integers with count for the given list of MST Instance ids.

## getBlockingStpPortsCountInVlans

Returns list of Integer objects containing the number of ports with STP blocking state participating in each VLAN for the given list of VLAN instance ids.

ValidationException is thrown if any of the following situations occurs:

- If vlanInstanceNameIds is null or it is empty.
- If vlanInstanceNameIds contains invalid VLAN InstanceNameId or null value.
- If there is no equivalent VLAN object with the given InstanceNameId in the vlanInstanceNameIds.

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**Parameters**

opContext—Operational context

vlanInstanceNameIds—List of InstanceNameId of VLANs

**Return Value**

List of Integers with count for the given list of VLAN ids.

## getForwardingStpPortsCountInMsts

Returns list of Integer objects containing the number of ports with STP forwarding state participating in each MST for the given list of MST instance ids.

ValidationException is thrown if any of the following situations occurs:

- If mstInstanceNameIds is null or it is empty.
- If mstInstanceNameIds contains invalid MstSetting InstanceNameId or null value.
- If there is no equivalent MstSetting object with the given InstanceNameId in the mstInstanceNameIds.

**Parameters**

opContext—Operational context

mstInstanceNameIds—List of InstanceNameId of MST ids

**Return Value**

List of Integers with count for the given list of MST Instance ids.

## getForwardingStpPortsCountInVlans

Returns list of Integer objects containing the number of ports with STP forwarding state participating in each VLAN for the given list of VLAN instance ids.

ValidationException is thrown if any of the following situations occurs:

- If vlanInstanceNameIds is null or it is empty.
- If vlanInstanceNameIds contains invalid VLAN InstanceNameId or null value.
- If there is no equivalent VLAN object with the given InstanceNameId in the vlanInstanceNameIds.

**Parameters**

opContext—Operational context

vlanInstanceNameIds—List of InstanceNameId of VLANs

**Return Value**

List of Integers with count for the given list of VLAN ids.

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## getMstGlobalSettings

Returns MST global setting for given list of network elements.

ValidationException is thrown if any of the following situations occurs:

- If neInstanceNameIds contains invalid NetworkElement InstanceNameId or null value.
- If there is no equivalent NetworkElement object with the given InstanceNameId in the neInstanceNameIds.

### Parameters

opContext—Operational context

neInstanceNameIds—List of InstanceNameId of network elements. If null, returns MST global setting for all network elements.

### Return Value

List of MstGlobalSetting corresponding to network elements queried.

## getMstIdsInNetwork

Returns IDs of MSTs configured on a list of network elements. No associations will be populated in this API, only MST range will be returned by this API

ValidationException is thrown if any of the following situations occurs:

- If neInstanceNameIds contains invalid NetworkElement InstanceNameId or null value.
- If there is no equivalent NetworkElement object with the given InstanceNameId in the neInstanceNameIds.

### Parameters

opContext—Operational context

neInstanceNameIds—InstanceNameIds of network elements whose MST IDs are to be queried. If null, will return the MST ID from all the managed network elements.

### Return Value

Range of MST IDs

## getMstInstances

Returns MST instances corresponding to given InstanceNameIds.

ValidationException is thrown if any of the following situations occurs:

- If mstSettingInstanceNameIds is null or it is empty.
- If mstSettingInstanceNameIds contains invalid MstSetting InstanceNameId or null value.
- If there is no equivalent MstSetting object with the given InstanceNameId in the mstSettingInstanceNameIds.

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#### Parameters

opContext—Operational context

mstSettingInstanceNameIds—List of InstanceNameId corresponding to the MST instances.

#### Return Value

List of MstSetting corresponding to the InstanceNameId queried.

Following associations will be available for each MstSetting:

- VLANs that are mapped
- Root bridgeId

Following associations will be available or each VLAN:

- VLAN status

## getMstInstancesInNetwork

Returns MST settings corresponding to a list of MST IDs for a list of network elements.

ValidationException is thrown if any of the following situations occurs:

- If neInstanceNameIds contains invalid NetworkElement InstanceNameId or null value.
- If there is no equivalent NetworkElement object with the given InstanceNameId in the neInstanceNameIds.

#### Parameters

opContext—Operational context

mstIds—range of MST IDs (e.g. 1-10,20,35,50-120). If null, returns all MSTs.

neInstanceNameIds—Instance name IDs of network elements for which MST IDs are to be queried. If null, returns MSTs on all managed network elements.

#### Return Value

List of MST settings

Following associations will be available for each MstSetting:

- VLANs that are mapped
- Root bridgeId

Following associations will be available for each VLAN:

- VLAN status

## getNetworkInterfacesWithStpSettings

Returns all the ports with STP settings.

ValidationException is thrown if the argument passed is null or it is not a valid network element InstanceNameId.

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**Parameters**

opContext—Operational context

neInstanceId—InstanceId of network element

**Return Value**

List of interfaces present in the given network element. In case of Nexus 7000 series switch, STP settings is supported only for Layer2 interfaces, therefore the returned list will contain only SwitchedNetworkInterface instances.

Following associations will be available for each NetworkInterface:

- STP Settings
- Link Settings
- Per-VLAN setting on a port and the associated VLAN
- Per-MST setting on a port and the associated MstSetting

## getOperationalStpSettingForVlans

Returns a list of StpSetting (either PvstSetting or MstSetting) objects corresponding to the VLAN instance name id. ValidationException is thrown if any of the following situations occurs:

- If vlanInstanceNameIds contains invalid VLAN InstanceNameId or null value.
- If there is no equivalent VLAN object for the input VLAN InstanceNameId.

**Parameters**

opContext—Operational context

vlanInstanceNameIds—list of VLAN InstanceNameId.

**Return Value**

List of StpSetting object (MstSetting, PvstSetting) corresponding to the input VLAN object.

## getStpDisabledVlansInNetwork

Returns STP Disabled VLAN objects corresponding to a list of VLAN IDs for a list of network elements.

ValidationException is thrown if any of the following situations occurs:

- If neInstanceNameIds contains invalid NetworkElement InstanceNameId or null value.
- If there is no equivalent NetworkElement object with the given InstanceNameId in the neInstanceNameIds.

**Parameters**

opContext—Operational context

vlanIds—range of VLAN IDs (e.g. 1-10,20,35,50-120). If null, returns all VLANs.

neInstanceNameIds—Instance name IDs of network elements for which VLAN IDs are to be queried. If null, returns VLANs on all managed network elements.

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#### **Return Value**

List of ExternalVlan

Following associations will be available for each VLAN:

- STP Setting
- Secondary VLANs associated, if the VLAN is a primary VLAN
- VLAN status

Following associations will be available for each PvstSetting:

- Root bridgeId

## getStpEnabledVlansInNetwork

Returns STP Enabled VLAN objects corresponding to a list of VLAN IDs for a list of network elements.

ValidationException is thrown if any of the following situations occurs:

- If neInstanceNameIds contains invalid NetworkElement InstanceNameId or null value.
- If there is no equivalent NetworkElement object with the given InstanceNameId in the neInstanceNameIds.

#### **Parameters**

opContext—Operational context

vlanIds—range of VLAN IDs (e.g. 1-10,20,35,50-120). If null, returns all VLANs.

neInstanceNameIds—Instance name IDs of network elements for which VLAN IDs are to be queried. If null, returns VLANs on all managed network elements.

#### **Return Value**

List of ExternalVlan

Following associations will be available for each VLAN:

- STP Setting
- Secondary VLANs associated if the VLAN is a primary VLAN
- VLAN status

Following associations will be available for each PvstSetting:

- Root bridgeId

## getStpGlobalSettings

Returns STP global setting for given list of network elements.

ValidationException is thrown if any of the following situations occurs:

- If neInstanceNameIds contains invalid NetworkElement InstanceNameId or null value.
- If there is no equivalent NetworkElement object with the given InstanceNameId in the neInstanceNameIds.

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**Parameters**

opContext—Operational context

neInstanceNameIds—List of InstanceNameId of network elements. If null, returns STP global setting for all network elements.

**Return Value**

List of StpGlobalSetting corresponding to network elements queried.

## getStpMode

Returns list of STP type for a given list of network elements.

ValidationException is thrown if any of the following situations occurs:

- If neInstanceNameIds is null or it is empty.
- If neInstanceNameIds contains invalid NetworkElement InstanceNameId or null value.
- If there is no equivalent NetworkElement object with the given InstanceNameId in the neInstanceNameIds.

**Parameters**

opContext—Operational context

neInstanceNameIds—List of {InstanceNameId} of network elements.

**Return Value**

List of STP type of network elements.

## getStpNetworkInterfaceSettings

Returns STP setting for give list of switch ports.

ValidationException is thrown if any of the following situations occurs:

- If networkInterfaceInstanceNameIds is null or it is empty.
- If networkInterfaceInstanceNameIds contains invalid NetworkInterface InstanceNameId or null value.
- If there is no equivalent NetworkInterface object with the given InstanceNameId in the networkInterfaceInstanceNameIds.

**Parameters**

opContext—Operational context

networkInterfaceInstanceNameIds—List of InstanceNameId of network interfaces.

**Return Value**

List of StpNetworkInterfaceSetting

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## getStpNetworkInterfaceSettingsForAccessPortsInMst

Returns list of SwitchedNetworkInterface objects corresponding to the input MST InstanceNameId. The STP setting information that exist between the input MST and any of its associated SwitchedNetworkInterfaces, will be available as a collection of StpNetworkInterfaceSettingForMst objects in each SwitchedNetworkInterface object. The StpNetworkInterfaceSettingForMst collection will be null when no STP setting information is available with the SwitchedNetworkInterface corresponding to the input MST.

ValidationException is thrown if the argument passed is null or it is not a valid MstSetting InstanceNameId.

### Parameters

opContext—Operational context

mstInstanceNameId—InstanceNameId of MST.

### Return Value

List of SwitchedNetworkInterface

Following associations will be available for each SwitchedNetworkInterface:

- Collection of StpNetworkInterfaceSettingForMst
- StpNetworkInterfaceStatus

Following associations will be available for each SwitchedNetworkInterface:

- Collection of StpNetworkInterfaceSettingForMst
- StpNetworkInterfaceStatus

## getStpNetworkInterfaceSettingsForPortsInVlan

Returns list of SwitchedNetworkInterface objects corresponding to a VLAN. The STP setting information that exist between the input VLAN and any of the SwitchedNetworkInterfaces, will be available as a collection of StpNetworkInterfaceSettingForVlan objects in each SwitchedNetworkInterface object. The StpNetworkInterfaceSettingForVlan collection will be null when no STP setting information is available with the SwitchedNetworkInterface corresponding to the input VLAN.

ValidationException is thrown if the argument passed is null or it is not a valid VLAN InstanceNameId.

### Parameters

opContext—Operational context

vlanInstanceNameId—InstanceNameId of VLAN.

### Return Value

List of SwitchedNetworkInterface

Following associations will be available for each SwitchedNetworkInterface:

- StpNetworkInterfaceSettingForVlan
- StpNetworkInterfaceStatus

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## getStpNetworkInterfaceSettingsForPortsInVlansByInterfaces

Returns list of SwitchedNetworkInterface objects which has an StpNetworkInterfaceSettingVlan association existing between each VLAN in vlanRange and any of the SwitchedNetworkInterface object corresponding to ifInstanceNameIdCol. The STP setting information that exist between the input VLAN and SwitchedNetworkInterfaces corresponding to ifInstanceNameIdCol, will be available as a collection of StpNetworkInterfaceSettingForVlan objects in each SwitchedNetworkInterface object. The StpNetworkInterfaceSettingForVlan collection will be null when no STP setting information is available with the SwitchedNetworkInterface corresponding to the input VLAN.

ValidationException is thrown if the argument passed is null or the vlanRange size is lesser than or equal to 0.

### Parameters

opContext—Operational context

ifInstanceNameIdCol—of SwitchedNetworkInterface

vlanRange—Range of VLANs.

### Return Value

List of SwitchedNetworkInterface

Following associations will be available for each SwitchedNetworkInterface:

- StpNetworkInterfaceSettingForVlan
- StpNetworkInterfaceStatus

## getStpNetworkInterfaceSettingsForTrunkPortsInMst

Returns list of SwitchedNetworkInterface objects corresponding to the input MST InstanceNameId. The STP setting information that exist between the input MST and any of its associated SwitchedNetworkInterfaces, will be available as a collection of StpNetworkInterfaceSettingForMst objects in each SwitchedNetworkInterface object. The StpNetworkInterfaceSettingForMst collection will be null when no STP setting information is available with the SwitchedNetworkInterface corresponding to the input MST.

ValidationException is thrown if the argument passed is null or it is not a valid MstSetting InstanceNameId.

### Parameters

opContext—Operational context

mstInstanceNameId—InstanceNameId of MST.

### Return Value

List of SwitchedNetworkInterface

Following associations will be available for each SwitchedNetworkInterface:

- Collection of StpNetworkInterfaceSettingForMst
- StpNetworkInterfaceStatus

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## getStpNetworkInterfaceSettingsForVlanMemberPortsInMst

Returns list of SwitchedNetworkInterface objects corresponding to the input MST InstanceNameId and member ports of each VLAN corresponding to vlanRange. The STP setting information that exist between the input MST and any of the VLAN member ports will be available as a collection of StpNetworkInterfaceSettingForMst objects in each SwitchedNetworkInterface object. The StpNetworkInterfaceSettingForMst collection will be null when no STP setting information is available with the SwitchedNetworkInterface corresponding to the input MST.

ValidationException is thrown if the argument passed is null or it is not a valid MstSetting InstanceNameId.

### Parameters

opContext—Operational context

mstInstanceNameId—InstanceNameId of MST

vlanInstanceNameId—InstanceNameId of VLAN

### Return Value

List of SwitchedNetworkInterface

Following associations will be available for each SwitchedNetworkInterface:

- Collection of StpNetworkInterfaceSettingForMst
- StpNetworkInterfaceStatus

## getStpSettingsForMst

Returns STP setting for a MST on a list of network elements. For a given MST and a list of network elements, returns a List of MstSetting, returns STP setting for all network elements.

ValidationException is thrown if any of the following situations occurs:

- If mstId is null.
- If neInstanceNameIds contains invalid NetworkElement InstanceNameId or null value.
- If there is no equivalent NetworkElement object with the given InstanceNameId in the neInstanceNameIds.

### Parameters

opContext—Operational context

mstId—ID of MST instance queried.

neInstanceNameIds—List of InstanceNameId of network elements queried.

### Return Value

List of MstSetting with associated StpRootBridgeStatus. Root bridge status will be null if no port in MST is operational

Following associations will be available for each MstSetting:

- VLANs that are mapped
- Root bridgeId

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Following associations will be available or each VLAN:

- VLAN status

## getStpSettingsForVlan

Returns STP setting (PVRST) for a VLAN on a set of network elements. For a given VLAN and a list of network elements, returns a List of PvstSetting. If network elements are not specified, returns STP setting for all network elements.

ValidationException is thrown if any of the following situations occurs:

- If vlanId is null.
- If neInstanceNameIds contains invalid NetworkElement InstanceNameId or null value.
- If there is no equivalent NetworkElement object with the given InstanceNameId in the neInstanceNameIds.

### Parameters

opContext—Operational context

vlanId—ID of VLAN queried.

neInstanceNameIds—List of InstanceNameId of network elements queried.

### Return Value

A List of PvstSetting with associated StpRootBridgeStatus. Root bridge status will be null if no port in VLAN is operational

Following associations will be available for each PvstSetting:

- Root bridgeId

## getStpStatusForNetworkInterfacesInVlan

Returns a list of StpNetworkInterfaceStatus objects corresponding to the StpNetworkInterfaceSettingForVlan association that exists between the VLAN corresponding to vlanInstanceNameId and each instance of NetworkInterface corresponding to interfaceInstanceNameIds list. An empty list will be returned if the device is operating in mst mode. ValidationException is thrown if any of the following situations occurs:

- If vlanInstanceNameId contains invalid VLAN InstanceNameId or null value.
- If there is no equivalent VLAN object for the input VLAN InstanceNameId.
- If interfaceInstanceNameIds contains invalid NetworkInterface InstanceNameId or null value.
- If there is no equivalent NetworkInterface object for the input NetworkInterface InstanceNameId.

### Parameters

opContext—Operational context

vlanInstanceNameId—VLAN InstanceNameId.

interfaceInstanceNameIds—list of NetworkInterface InstanceNameId.

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**Return Value**

List of StpNetworkInterfaceStatus.

## getTotalStpPortsCountInMsts

Returns list of Integer objects containing the number of ports with STP status participating in each MST for the given list of MST instance ids.

ValidationException is thrown if any of the following situations occurs:

- If mstInstanceNameIds is null or it is empty.
- If mstInstanceNameIds contains invalid MstSetting InstanceNameId or null value.
- If there is no equivalent MstSetting object with the given InstanceNameId in the mstInstanceNameIds.

**Parameters**

opContext—Operational context

mstInstanceNameIds—List of InstanceNameId of MST ids

**Return Value**

List of Integers with count for the given list of MST Instance ids.

## getTotalStpPortsCountInVlans

Returns list of Integer objects containing the number of ports with STP status participating in each VLAN for the given list of VLAN instance ids.

ValidationException is thrown if any of the following situations occurs:

- If vlanInstanceNameIds is null or it is empty.
- If vlanInstanceNameIds contains invalid VLAN InstanceNameId or null value.
- If there is no equivalent VLAN object with the given InstanceNameId in the vlanInstanceNameIds.

**Parameters**

opContext—Operational context

vlanInstanceNameIds—List of InstanceNameId of VLANs.

**Return Value**

List of Integers with count for the given list of VLAN ids.

## getVlansWithPvrstSetting

Returns VLANs with PVRST Settings corresponding to a list of VLAN IDs for a list of network elements.

ValidationException is thrown if any of the following situations occurs:

- If neInstanceNameIds contains invalid NetworkElement InstanceNameId or null value.

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- If there is no equivalent NetworkElement object with the given InstanceNameId in the neInstanceNameIds.

### **Parameters**

opContext—Operational context

vlanIds—range of VLAN IDs (e.g. 1-10,20,35,50-120). If null, returns all VLANs.

neInstanceNameIds—Instance name IDs of network elements for which VLAN IDs are to be queried. If null, returns MSTs on all managed network elements.

### **Return Value**

A List of VLAN

Following associations will be available for each VLAN:

- STP Setting
- Secondary VLANs associated if the VLAN is a primary VLAN.
- Primary VLAN reference incase of Secondary VLAN.
- VLAN status

Following associations will be available for each PvstSetting:

- Root bridgeId

Following associations will be available for each SecondaryVlan:

- STP Setting. This settings has StpRootBridgeStatus
- VLAN status

## **modifyMstGlobalSettings**

Modify MST global setting for one or more network elements.

ValidationException is thrown if any of the following situations occurs:

- If neInstanceNameId is null.
- If neInstanceNameId is not a valid network element InstanceNameId.
- If the modifiedMstGlobalSetting is null.

### **Parameters**

opContext—Operational context

modifiedMstGlobalSetting—Modified MstGlobalSetting.

### **Return Value**

void

## **modifyMstInstances**

Modify settings for MST instances. User cannot modify the MST id in the settings. User also cannot change both switch priority and STP root type. Can set either switch priority or STP root type.

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ValidationException is thrown if any of the following situations occurs:

- If the mstInstances is null or the collection is empty.
- If the mstInstances contains one or more null element, or the collection contains objects that are not of type MstSetting.
- If the any of the MstSetting object within mstInstances does not have equivalent persisted MstSetting object.

PropertiesException is thrown if any of the following situations occurs:

- If any of the MstSetting attribute is not valid.

Example:

- stpHelloTime of an MstSetting should be some Integer with value between 1-10, any value that is less than 1 or greater than 10 will cause a PropertiesException.

### **Parameters**

opContext—Operational context

mstSettings—List of modified MstSetting.

### **Return Value**

void

## **modifyPvstSettings**

Modify settings for PVRST instances. User also cannot change both switch priority and STP root type. Can set either switch priority or STP root type.

ValidationException is thrown if any of the following situations occurs:

- If the pvstSettings is null or the collection is empty.
- If the pvstSettings contains one or more null element, or the collection contains objects that are not of type PvstSetting.
- If the any of the PvstSetting object within pvstSettings does not have equivalent persisted PvstSetting object.

PropertiesException is thrown if any of the following situations occurs:

- If any of the PvstSetting attribute is not valid.

Example:

- stpHelloTime of an PvstSetting should be some Integer with value between 1-10, any value that is less than 1 or greater than 10 will cause a PropertiesException.

### **Parameters**

opContext—Operational context

pvstSettings—List of modified PvstSetting.

### **Return Value**

void

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## modifyStpGlobalSettings

Modify STP global setting for a network element. User can modify the protocol also using the API.

ValidationException is thrown if any of the following situations occurs:

- If neInstanceId is null.
- If neInstanceId is not a valid network element InstanceNameId.
- If the modifiedStpGlobalSetting is null.

### Parameters

opContext—Operational context

modifiedStpGlobalSetting—Modified StpGlobalSetting.

### Return Value

void

## modifyStpNetworkInterfaceSettingForMst

Modify MST settings for a specific MST Instance for a switch port. Set NULL values for the fields that need be reset to default values.

ValidationException is thrown if any of the following situations occurs:

- If settings is null or it is empty.

PropertiesException is thrown if any of the following situations occurs:

- If any of the StpNetworkInterfaceSettingForMst attribute corresponding to an interface is not valid.

Example:

- cost of an StpNetworkInterfaceSettingForMst should be some Integer with value between 1-200000000, any value that is less than 1 or greater than 200000000 will cause a PropertiesException.

### Parameters

opContext—Operational context

settings—List of StpNetworkInterfaceSettingForMst

### Return Value

void

## modifyStpNetworkInterfaceSettingForVlan

Modify PVLAN settings for a specific VLAN for a switch port. Set NULL values for the fields that need be reset to default values.

ValidationException is thrown if any of the following situations occurs:

- If settings is null or it is empty.

PropertiesException is thrown if any of the following situations occurs:

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- If any of the StpNetworkInterfaceSettingForVlan attribute corresponding to an interface is not valid.

Example:

- cost of an StpNetworkInterfaceSettingForVlan should be some Integer with value between 1-200000000, any value that is less than 1 or greater than 200000000 will cause a PropertiesException.

**Parameters**

opContext—Operational context

settings—List of StpNetworkInterfaceSettingForVlan

**Return Value**

void

## modifyStpNetworkInterfaceSettings

Modify STP settings of network interfaces. Pass NULL values for the parameters that need be reset to default values.

ValidationException is thrown if any of the following situations occurs:

- If stpNetworkInterfaceSettings is null or it is empty.
- If stpNetworkInterfaceSettings contains invalid StpNetworkInterfaceSetting InstanceNameId or null value.

PropertiesException is thrown if any of the following situations occurs:

- If any of the StpNetworkInterfaceSetting attribute is not valid.

Example:

- cost of an StpNetworkInterfaceSetting should be some Integer with value between 1-200000000, any value that is less than 1 or greater than 200000000 will cause a PropertiesException.

**Parameters**

opContext—Operational context

stpNetworkInterfaceSettings—List of modified STP settings.

**Return Value**

void

## modifyStpSettingForNetworkInterfaces

Modify link setting and STP setting for a given collection of Network Interfaces. Pass NULL values for the fields that need be reset to default values.

ValidationException is thrown if any of the following situations occurs:

- If networkInterfaces is null or it is empty.
- If the any of the NetworkInterface object within networkInterfaces does not have equivalent persisted NetworkInterface object.

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PropertiesException is thrown if any of the following situations occurs:

- If any of the StpNetworkInterfaceSetting or StpLinkSetting attribute corresponding to an interface is not valid.

Example:

- cost of an StpNetworkInterfaceSetting should be some Integer with value between 1-200000000, any value that is less than 1 or greater than 200000000 will cause a PropertiesException.

### **Parameters**

opContext—Operational context

networkInterfaces—List of NetworkInterface with modified StpLinkSetting and StpNetworkInterfaceSetting

### **Return Value**

void

## **modifyStpType**

Modify STP type for a set of network elements.

ValidationException is thrown if any of the following situations occurs:

- If neInstanceNameIds is null or it is empty.
- If neInstanceNameIds contains invalid network element InstanceNameId or null value.
- If there is no equivalent network element object with the given InstanceNameId in the neInstanceNameIds.
- If the protocol is null.

### **Parameters**

opContext—Operational context

neInstanceNameIds—List of InstanceNameId of network elements.

protocol—STP protocol type.

### **Return Value**

void

## **unbindVlansFromMstInstance**

Unbind one or more VLANs from MST instance.

ValidationException is thrown if any of the following situations occurs:

- If the mstId is null.
- If the mstId does not have equivalent MstSetting object in the database.
- If the vlanIds is null.

IntegrityException is thrown if any of the following situations occurs:

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- If MstSetting object does not have any VLAN associated with it.
- If all VLANs associated to MstSetting object is specified in unbind vlanIds.

FeatureException is thrown if MstSetting object corresponds to default MST.

ParameterException is thrown if any of the VLANs specified in vlanIds has no pre-existing association with MstSetting object.

**Parameters**

opContext—Operational context

mstId—InstanceNameId of MST

vlanIds—range of VLAN IDs (e.g. 1-10,20,35,50-120)

**Return Value**

void